April 18, 2006 CPC

STAFF'S
REQUEST ANALYSIS
AND
RECOMMENDATION

06PR0339

Watermark, LLC

Dale Magisterial District
6900 Ironbridge Road

REQUEST: Appeals the decision of the Director of Environmental Engineering relating to the property encompassed by the Perennial Flow Determination pursuant to Section 19-231(d) of the County Code. Specifically, the appellant contests the site-specific evaluation conducted by the County's Office of Water Quality pursuant to Section 19-231(a) of the County Code.

RECOMMENDATION

Staff recommends that the Commission uphold the initial decision of the Water Quality Manager dated December 15, 2005 and the final decision of the Director of Environmental Engineering as set forth in his letter dated February 3, 2006, for the following reasons:

County staff assessed the subject property in accordance with the requirements of the Chesapeake Bay Preservation Act and the County's ordinance using a reliable, site-specific evaluation approved by the Chesapeake Bay Local Assistance Department (CBLAD) for its determination of perennial stream flow.

The applicant used a photo-documentation method as a means of determination of perennial flow. The method was inappropriately applied to show a dry channel at a time of year when very low flow or possibly no flow could be expected, such as during drought or near-drought conditions, or in especially hot, dry weather.

GENERAL INFORMATION

Location:

West line of Iron Bridge Road. Tax IDs 770-676-Part of 9502 and 771-677-Part of 3871 (sheet 17)

Existing Zoning:

R-7

Size:

385 acres

Existing Land Use:

Forested with mostly hardwood trees, vacant

DISCUSSION

FIELD CONDITIONS

The property is a 385-acre tract located west of Route 10 (Iron Bridge Road), east of Cogbill Road and adjacent to and north of the Chesterfield County Airport. The water resources on-site include Cosby Lake on the eastern side of the property along Route 10 and two stream systems, Kingsland Creek along the northern edge, and an unnamed tributary located along the southern portion of the property. The two streams, which flow into Cosby Lake, originate off the property and are contained mostly within wetland systems. The drainage area above Cosby Lake for the Kingsland Creek stream system is 541 acres while the drainage area for the unnamed tributary is 537 acres, for a combined total of approximately 1.69 square miles of drainage contributing to Cosby Lake (Please refer to figure 1).

METHODS

Chesterfield County uses the *Field Indicator Protocols*; approved by the CBLAD, as "a reliable, site-specific evaluation" relating to the Chesapeake Bay Preservation Areas (CBPA), for the purpose of evaluating stream flow. The method is one of five that can be used by local governments to determine or confirm site-specific determinations.

The field indicator protocol (also know as Fairfax County Method) is primarily used among consultants in Chesterfield for its ease of use, County's support and reproducibility. The method evaluates stream geomorphology, hydrology, and biology in the determination of perennial flow, with a value assigned to each of these factors. A score of 25 +/-3 or greater indicates a stream has perennial flow.

The applicant chose an alternative method of determining perennial flow, documented observation (also called the photographic documentation method). While approved by CBLAD, the method was incorrectly applied during a period of drought (i.e. elevated temperatures and low rainfall). CBLAD's guidance outlines certain conditions be met when the photographic documentation method is used. The following information is contained in the CBLAD's (September 2003) Guidance Document - *Determinations of Water Bodies with Perennial Flow.*

"...if photo-documentation alone is used for purposes of documenting stream flow or lack of stream flow, it should always be corroborated with precipitation data, which documents climatic conditions at the time the photograph was taken".

FIELD DETERMINATIONS

In December 2005, the County's Office of Water Quality (OWQ) conducted several perennial flow determinations of the property using the field indicator protocol. County staff determined that, based on the use of the Fairfax method, both of the two main channels contained on the property are perennial. (Please see the attached map (figure 2.) indicating location of each station). Stations Reach-01 and Reach-03 received scores of 25 and 30 respectively, indicating perennial flow, while a side channel, Reach-02, received a score of 22 indicating the lack of perennial flow.

On September 1, 2005, Koontz-Bryant, P.C. personnel conducted a visual inspection of the property. The applicant used the photo-documentation method for the determination of perennial flow. Photographs showing channel containing little water were recorded at points along the two main channels and some of the tributaries. (Please see the attached map (figure 3.) indicating photo site locations). However, the method used by the applicant for the determination of perennial flow was incorrectly performed (up-stream and down-stream photos at 200 ft intervals should be taken along the channel) and was inappropriately applied according to CBLAD's Guidance Document. Daily climatological data, as recorded from Richmond International Airport from January 2005 thru August 2005 was submitted as supporting documentation, along with Palmer Drought Severity Index for the month of August 2005.

CONCLUSION

The two methods, 1) field indicating protocol and 2) documented observation, are approved by the CBLAD as a reliable, site-specific evaluation for determination of perennial flow. In addition to County staff evaluation and determination, CBLAD has reviewed the documentation submitted by Koontz-Bryant and conducted their own review of the local weather conditions at the time of the photo-documentation on the subject parcel. They have concurred that, at the time the photo was taken, moderate drought conditions existed. Subsequently, CBLAD has confirmed staff's assessment that the perennial flow determination as performed by Koontz-Bryant is inconsistent with the Guidance and does not constitute a reliable, site-specific evaluation of perennial flow. Therefore, the field determination of perennial flow by the OWQ should be upheld.

Figure 1. Area Map

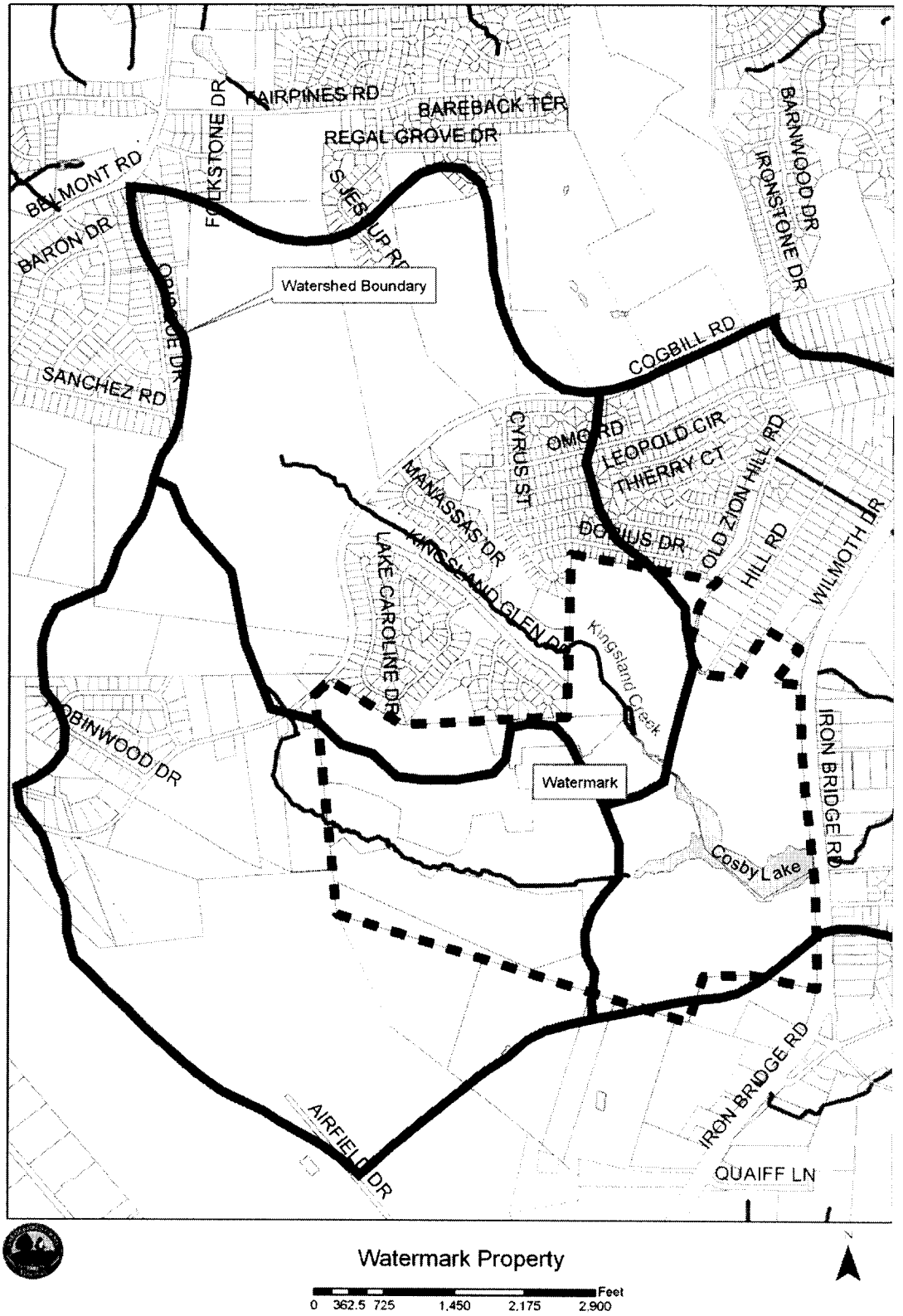

Figure 2. Office of Water Quality's Reach Locations

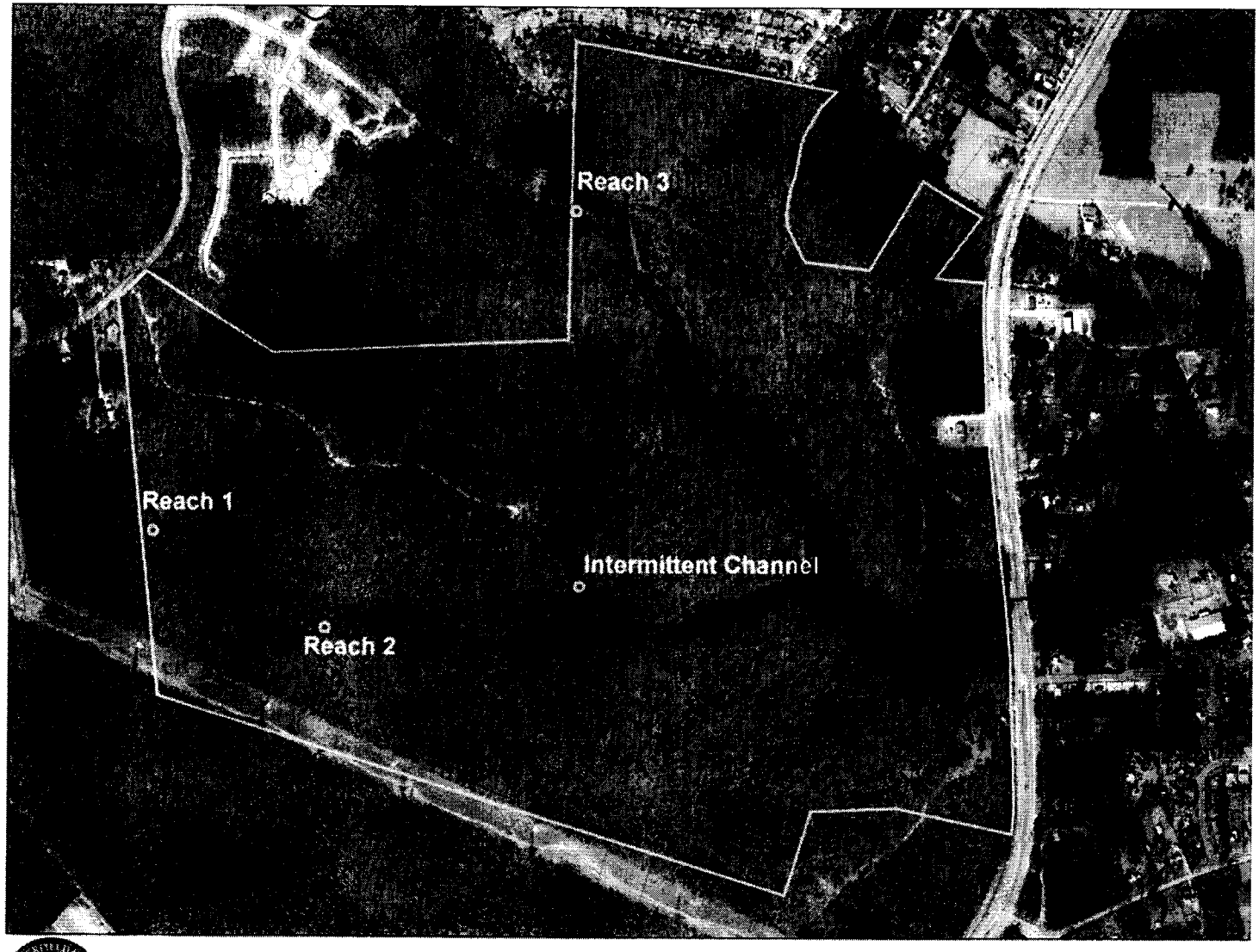

Figure 3. Applicant's Photo Site Locations